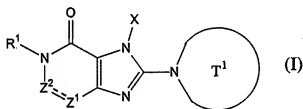


Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Previously Presented) A method for treating or preventing multiple sclerosis, the method comprising administering to a patient in need thereof a therapeutically effective amount of a compound represented by formula (I), or a pharmaceutically acceptable salt or hydrate thereof,



wherein,

T¹ represents a mono- or bicyclic 4- to 12-membered heterocyclic group comprising one or two nitrogen atoms in a ring, which may have substituents;

X represents a C₁₋₆ alkyl group that may have a substituent, a C₂₋₆ alkenyl group that may have a substituent, a C₂₋₆ alkynyl group that may have a substituent, a C₆₋₁₀ aryl group that may have a substituent, a 5- to 10-membered heteroaryl group that may have a substituent, a C₆₋₁₀ aryl C₁₋₆ alkyl group that may have a substituent, or a 5- to 10-membered heteroaryl C₁₋₆ alkyl group that may have a substituent;

in formula (I), the following formula



represents a single or double bond;

and when the formula



represents a single bond, Z^1 represents a group represented by the formula $-NR^{2-}$,
and Z^2 represents a carbonyl group;
when the formula



represents a double bond, Z^1 and Z^2 each independently represent a nitrogen atom
or a group represented by the formula $-CR^{2=}$;

R^1 and R^2 each independently represent a group represented by the formula $-A^0-A^1-A^2$

wherein, A^0 represents a single bond or a C_{1-6} alkylene group that may have one
to three groups selected from a substituent group B described below;

A^1 represents a single bond, an oxygen atom, a sulfur atom, a sulfinyl group, a
sulfonyl group, a carbonyl group, a formula $-O-CO-$, a formula $-CO-O-$, a
formula $-NR^A$, a formula $-CO-NR^A$, a formula $-NR^A-CO-$, a formula
 $-SO_2-NR^A$, or a formula $-NR^A-SO_2-$;

A^2 and R^A each independently represent a hydrogen atom, a halogen atom, a
cyano group, a guanidino group, a C_{1-6} alkyl group, a C_{3-8} cycloalkyl
group, a C_{3-8} cycloalkenyl group, a C_{2-6} alkenyl group, a C_{2-6} alkynyl
group, a C_{6-10} aryl group, a 5- to 10-membered heteroaryl group, a 4- to
8-membered heterocyclic group, a 5- to 10-membered heteroaryl C_{1-6} alkyl
group, a C_{6-10} aryl C_{1-6} alkyl group, or a C_{2-7} alkyl carbonyl group;

with the proviso that A^2 and R^A may each independently have one to three
moieties selected from substituent group B, substituent group B consisting
of:

a hydroxyl group, a mercapto group, a cyano group, a nitro group, a
halogen atom, a trifluoromethyl group, a trifluoromethoxy group,

an alkylenedioxy group, a C₁₋₆ alkyl group that may have a substituent, a C₃₋₈ cycloalkyl group, a C₂₋₆ alkenyl group, a C₂₋₆ alkynyl group, a C₆₋₁₀ aryl group, a 5- to 10-membered heteroaryl group, a 4- to 8-membered heterocyclic group, a C₁₋₆ alkoxy group, a C₁₋₆ alkylthio group;

groups represented by the formulae -SO₂-NR^{B1}-R^{B2}, -NR^{B1}-CO-R^{B2}, and -NR^{B1}-R^{B2},

where R^{B1} and R^{B2} each independently represent a hydrogen atom or a C₁₋₆ alkyl group,

a group represented by the formula -CO-R^{B3},

where R^{B3} represents a 4- to 8-membered heterocyclic group,

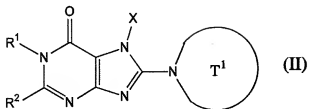
and groups represented by the formulae -CO-R^{B4}-R^{B5} and -CH₂-CO-R^{B4}-R^{B5}

where R^{B4} represents a single bond, an oxygen atom, or a formula -NR^{B6}-; and

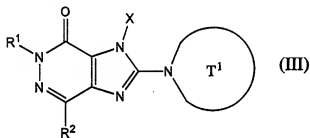
R^{B5} and R^{B6} each independently represent a hydrogen atom, a C₁₋₆ alkyl group, a C₃₋₈ cycloalkyl group, a C₂₋₆ alkenyl group, a C₂₋₆ alkynyl group, a C₆₋₁₀ aryl group, a 5- to 10-membered heteroaryl group, a 4- to 8-membered heterocyclic C₁₋₆ alkyl group, a C₆₋₁₀ aryl C₁₋₆ alkyl group, or a 5-10-membered heteroaryl C₁₋₆ alkyl group; and

when Z² represents the formula -CR²=, R¹ and R² may together form a 5- to 7-membered ring.

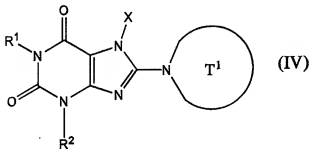
2. (Previously Presented) The method of claim 1, wherein the compound has the formula:



3. (Previously Presented) The method of claim 1, wherein the compound has the formula:



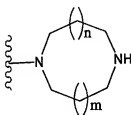
4. (Previously Presented) The method of claim 1, wherein the compound has the formula:



5. (Previously Presented) The method of claim 1, wherein T¹ is selected from the group consisting of:

- an azetidin-1-yl group that may have a substituent;
- a pyrrolidine-1-yl group that may have a substituent;

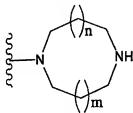
a piperidine-1-yl group that may have a substituent;
an azepan-1-yl group that may have a substituent; and
a group represented by the following formula:



where n and m each independently represent zero or one.

6. (Previously Presented) The method of claim 1, wherein T^1 is selected from the group consisting of:

an azetidin-1-yl group that may have an amino group;
a pyrrolidin-1-yl group that may have an amino group,
a piperidin-1-yl group that may have an amino group;
an azepan-1-yl group that may have an amino group; and
is a group represented by the following formula:



where n and m each independently represent zero or one.

7. (Previously Presented) The method of claim 1, wherein T^1 is a piperazine-1-yl group or a 3-aminopiperidine-1-yl group.

8. (Previously Presented) The method of claim 1, wherein T^1 is a piperazine-1-yl group.

9. (Previously Presented) The method of claim 1, wherein X is a group represented by the formula $-X^1-X^2$ where

X^1 represents a single bond or a methylene group that may have a substituent;

X^2 represents

a C_{2-6} alkenyl group that may have a substituent,

a C_{2-6} alkynyl group that may have a substituent, or

a phenyl group that may have a substituent.

10. (Previously Presented) The method of claim 1, wherein X is a group represented by the formula $-X^{11}-X^{12}$ where

X^{11} represents a single bond or a methylene group;

X^{12} represents

a C_{2-6} alkenyl group,

a C_{2-6} alkynyl group, or

a phenyl group that may have a substituent.

11. (Previously Presented) The method of claim 9 or 10, wherein the phenyl group has at position 2 a substituent selected from the group consisting of: a hydroxyl group, a fluorine atom, a chlorine atom, a methyl group, an ethyl group, a fluoromethyl group, a vinyl group, a methoxy group, an ethoxy group, an acetyl group, a cyano group, a formyl group, and a C_{2-7} alkoxy carbonyl group.

12. (Previously Presented) The method of claim 1, wherein X is a 3-methyl-2-buten-1-yl group, a 2-butyne-1-yl group, a benzyl group, or a 2-chlorophenyl group.

13. (Previously Presented) The method of claim 1, wherein X is a 2-butyne-1-yl group.

14. (Previously Presented) The method of claim 1, wherein R^1 is a hydrogen atom or a group represented by the formula $-A^{10}-A^{11}-A^{12}$ wherein,

A¹⁰ represents a C₁₋₆ alkylene group that may have one to three moieties selected from substituent group C, substituent group C consisting of:
a hydroxyl group, a nitro group, a cyano group, a halogen atom, a C₁₋₆ alkyl group, a C₁₋₆ alkoxy group, a C₁₋₆ alkylthio group, a trifluoromethyl group, a group represented by the formula -NR^{C1}-R^{C2},
where R^{C1} and R^{C2} each independently represent a hydrogen atom or a C₁₋₆ alkyl group,
and groups represented by the formulae -CO-R^{C3}-R^{C4} and -CH₂-CO-R^{C3}-R^{C4},
where R^{C3} represents a single bond, an oxygen atom, or a formula -NR^{C5};
and
R^{C4} and R^{C5} each independently represent a hydrogen atom or a C₁₋₆ alkyl group;

A¹¹ represents a single bond, an oxygen atom, a sulfur atom, or a carbonyl group;

A¹² represents
a hydrogen atom,
a C₆₋₁₀ aryl group that may have one to three moieties selected from substituent group C,
a 5- to 10-membered heteroaryl group that may have one to three moieties selected from substituent group C,
a 5- to 10-membered heteroaryl C₁₋₆ alkyl group that may have one to three moieties selected from substituent group C, or
a C₆₋₁₀ aryl C₁₋₆ alkyl group that may have one to three moieties selected from substituent group C.

15. (Previously Presented) The method of claim 1, wherein R¹ is
a hydrogen atom,
a C₁₋₆ alkyl group that may have one to three moieties selected from substituent group C
substituent group C consisting of:

a hydroxyl group, a nitro group, a cyano group, a halogen atom, a C₁₋₆ alkyl group, a C₁₋₆ alkoxy group, a C₁₋₆ alkylthio group, a trifluoromethyl group, a group represented by the formula -NR^{C1}-R^{C2},
where R^{C1} and R^{C2} each independently represent a hydrogen atom or a C₁₋₆ alkyl group,
and groups represented by the formulae -CO-R^{C3}-R^{C4} and -CH₂-CO-R^{C3}-R^{C4}
where R^{C3} represents a single bond, an oxygen atom, or a formula -NR^{C5}-; and
R^{C4} and R^{C5} each independently represent a hydrogen atom or a C₁₋₆ alkyl group;
a 5- to 10-membered heteroaryl C₁₋₆ alkyl group that may have one to three moieties selected from substituent group C, or
a C₆₋₁₀ aryl C₁₋₆ alkyl group that may have one to three moieties selected from substituent group C.

16. (Previously Presented) The method of claim 14 or 15, wherein substituent group C consists of a cyano group, a C₁₋₆ alkoxy group, a C₂₋₇ alkoxy carbonyl group, and halogen atom.

17. (Previously Presented) The method of claim 1, wherein R¹ is a methyl group, a cyanobenzyl group, fluorocyanobenzyl group, a phenethyl group, a 2-methoxyethyl group, or a 4-methoxycarbonylpyridin-2-yl group.

18. (Previously Presented) The method of claim 1, wherein R¹ is a methyl group or a 2-cyanobenzyl group.

19. (Previously Presented) The method of claim 1, wherein
R² is
a hydrogen atom,

a cyano group, or

a group represented by the formula $-A^{21}-A^{22}$

where A^{21} represents

a single bond,
an oxygen atom,
a sulfur atom,
a sulfinyl group,
a sulfonyl group,
a carbonyl group,
a formula $-O-CO-$,
a formula $-CO-O-$,
a formula $-NR^{A2}-$,
a formula $-CO-NR^{A2}-$,
or a formula $-NR^{A2}-CO-$;

A^{22} and R^{A2} each independently represent a hydrogen atom, a cyano group, a C_{1-6} alkyl group, a C_{3-8} cycloalkyl group, a C_{2-6} alkenyl group, a C_{2-6} alkynyl group, a C_{6-10} aryl group, a 5- to 10-membered heteroaryl group, a 4- to 8-membered heterocyclic group, a 5- to 10-membered heteroaryl C_{1-6} alkyl group, or a C_{6-10} aryl C_{1-6} alkyl group;

with the proviso that A^{22} and R^{A2} each independently may have one to three moieties selected from substituent group D, substituent group D consisting of:

a hydroxyl group,
a cyano group,
a nitro group,
a halogen atom,
a C_{1-6} alkyl group,
a C_{1-6} alkoxy group,

a C₁₋₆ alkylthio group,
a trifluoromethyl group,
a group represented by the formula -NR^{D1}-R^{D2}
where R^{D1} and R^{D2} each independently
represent a hydrogen atom or a C₁₋₆
alkyl group,
a group represented by the formula -CO-R^{D3}
where R^{D3} represents a 4- to 8-membered
heterocyclic group, and
a group represented by the formula -CO-R^{D4}-R^{D5}
where R^{D4} represents a single bond, an
oxygen atom, or a formula -NR^{D6};
R^{D5} and R^{D6} each independently
represent a hydrogen atom, a
C₃₋₈ cycloalkyl group, or a
C₁₋₆ alkyl group.

20. (Previously Presented) The method of claim 1, wherein

R² is

a hydrogen atom,
a cyano group,
a carboxy group,
a C₂₋₇ alkoxy carbonyl group,
a C₁₋₆ alkyl group,
a group represented by the formula -CONR^{D7}R^{D8}
wherein R^{D7} and R^{D8} each independently represent a hydrogen atom or a C₁₋₆
alkyl group,
or a group represented by the formula -A²³-A²⁴
where A²³ represents

an oxygen atom,
a sulfur atom, or
a formula $-NR^{A3}$;

A^{24} and R^{A3} each independently represent

a hydrogen atom,
a C_{1-6} alkyl group that may have a moiety selected from substituent group
D1, substituent group D1 consisting of:

a carboxy group,
a C_{2-7} alkoxy carbonyl group,
a C_{1-6} alkyl group,
a group represented by the formula $-CONR^{D7}R^{D8}$
wherein R^{D7} and R^{D8} each independently represent a
hydrogen atom or a C_{1-6} alkyl group,
a pyrrolidin-1-yl carbonyl group,
a C_{1-6} alkyl group, and
a C_{1-6} alkoxy group,

a C_{3-8} cycloalkyl group that may have a moiety selected from substituent
group D1,

a C_{2-6} alkenyl group that may have a moiety selected from substituent
group D1,

a C_{2-6} alkynyl group that may have a moiety selected from substituent
group D1,

a phenyl group that may have a moiety selected from substituent group
D1, or

a 5- to 10-membered heteroaryl group that may have a moiety selected from substituent group
D1.

21. (Previously Presented) The method of claim 1, wherein

R^2 is

a hydrogen atom,
a methyl group,
a cyano group,
a C₁₋₆ alkoxy group, or
a group represented by the formula -A²⁵-A²⁶

where A²⁵ represents

an oxygen atom,
a sulfur atom, or
a formula -NR^{A4};

A²⁶ and R^{A4} each independently represent

a hydrogen atom,
a C₁₋₆ alkyl group that may have a moiety selected from substituent group

D1, substituent group D1 consisting of:

a carboxy group,
a C₂₋₇ alkoxycarbonyl group,
a C₁₋₆ alkyl group,
a group represented by the formula -CONR^{D7}R^{D8}

wherein R^{D7} and R^{D8} each independently represent a

hydrogen atom or a C₁₋₆ alkyl group,

a pyrrolidin-1-ylcarbonyl group,

a C₁₋₆ alkyl group, and

a C₁₋₆ alkoxy group;

a C₃₋₈ cycloalkyl group that may have a moiety selected from substituent

group D1, or

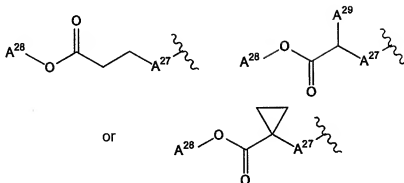
a phenyl group that may have a moiety selected from substituent group D1.

22. (Previously Presented) The method of claim 1, wherein

R² is

a hydrogen atom,

a cyano group,
a methoxy group,
a carbamoylphenyloxy group, or
a group represented by the following formula:



where A²⁷ represents an oxygen atom, a sulfur atom, or -NH-; and
A²⁸ and A²⁹ each independently represent a hydrogen atom or a C₁₋₆ alkyl group.

23. (Previously Presented) The method of claim 1, wherein R² is a hydrogen atom, a cyano group, or a 2-carbamoylphenyloxy group.

24. (Previously Presented) The method of claim 1, wherein the compound represented by formula (I) is selected from the group consisting of:
7-(2-butynyl)-1,3-dimethyl-8-(piperazin-1-yl)-3,7-dihydropurine-2,6-dione,
7-(2-butynyl)-2-cyano-1-methyl-8-(piperazin-1-yl)-1,7-dihydropurin-6-one,
3-(2-butynyl)-5-methyl-2-(piperazin-1-yl)-3,5-dihydroimidazo[4,5-d]pyridazin-4-one,
2-(3-aminopiperidin-1-yl)-3-(2-butynyl)-5-methyl-3,5-dihydroimidazo[4,5-d]pyridazin-4-one,
2-[7-(2-butynyl)-1-methyl-6-oxo-8-(piperazin-1-yl)-6,7-dihydro-1H-purin-2-yloxy]benzamide,
7-(2-butynyl)-1-(2-cyanobenzyl)-6-oxo-8-(piperazin-1-yl)-6,7-dihydro-1H-purine-2-carbonitrile,
and
2-[3-(2-butynyl)-4-oxo-2-(piperazin-1-yl)-3,4-dihydroimidazo[4,5-d]pyridazin-5-ylmethyl]benzonitrile.

25. (Previously Presented) The method of claim 1, wherein the compound represented by formula (I) is selected from the group consisting of:

7-(2-butynyl)-2-cyano-1-methyl-8-(piperazin-1-yl)-1,7-dihydropurin-6-one,
3-(2-butynyl)-5-methyl-2-(piperazin-1-yl)-3,5-dihydroimidazo[4,5-d]pyridazin-4-one,
2-(3-aminopiperidin-1-yl)-3-(2-butynyl)-5-methyl-3,5-dihydroimidazo[4,5-d]pyridazin-4-one,
2-[7-(2-butynyl)-1-methyl-6-oxo-8-(piperazin-1-yl)-6,7-dihydro-1H-purin-2-yloxy]benzamide,
7-(2-butynyl)-1-(2-cyanobenzyl)-6-oxo-8-(piperazin-1-yl)-6,7-dihydro-1H-purine-2-carbonitrile,
and
2-[3-(2-butynyl)-4-oxo-2-(piperazin-1-yl)-3,4-dihydroimidazo[4,5-d]pyridazin-5-ylmethyl]benzonitrile.